**Domain: Measurement and Data Standard Code: 2.MD.8 Teacher Name: Becca Hall, Michele Gaetz, Brandi Richman, Emilee Liddiard**

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. “Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks.”

*Mathematics Teaching in the Middle School 14* (October 2008): 132-138.

|  |  |
| --- | --- |
| **PART 1: SELECTING AND SETTING UP A MATHEMATICAL TASK** | |
| What are your mathematical goals for the lesson? (i.e., what do you want  students to know and understand about mathematics as a result of this lesson?) | * Count, add, and subtract money using appropriate symbols * Using deductive reasoning * Using addition to check your subtraction * Counting on |
| * What are your expectations for students as they work on and complete this task? * What resources or tools will students have to use in their work that will give them entry into, and help them reason through, the task? * How will the students work—   independently, in small groups, or in pairs—to explore this task?   * How will students record and report their work? | * Discuss possible/more than one solution * Financial literacy: Budgeting * Money manipulatives, play money, magnetic money * Counters, base-ten blocks * Paper, pencil * Pairs * Math Journal * Make a carnival poster to advertise what they did at the carnival |
| How will you introduce students to the activity so as to provide access to *all*  students while maintaining the cognitive demands of the task? | * Show a Lagoon Commercial * Post a past carnival poster in the room * Have principal (wearing a clown wig) deliver balloons to your room, students must pop balloons to get task * Show Madagascar 3 Circus preview |

|  |  |
| --- | --- |
| **PART 2: SUPPORTING STUDENTS’ EXPLORATION OF THE TASK** | |
| As students work independently or in small groups, what questions will you ask to—   help a group get started or make progress on the task?   focus students’ thinking on the  key mathematical ideas in the task?   assess students’ understanding of  key mathematical ideas, problem- solving strategies, or the representations?   advance students’ understanding  of the mathematical ideas? | * What information do you already have? * What information do you need? * What would you start with? Where are you going to start? * What strategies have you tried? * What can you try next? * Have you used a manipulative? * Why do you think this works? * Is there another way to solve this? A better way to solve this? * Did you notice any patterns about how you spent your money? * Could you have solved this more efficiently using a different tool? |
| How will you ensure that students remain engaged in the task?   What assistance will you give or what questions will you ask a  student (or group) who becomes  quickly frustrated and requests more direction and guidance is  solving the task?   What will you do if a student (or group) finishes the task almost  immediately? How will you  extend the task so as to provide additional challenge? | * What have you tried? * How can find that information? * How could do the most things with your money? * How could you spend the least amount of money, and still do an activity from each category? * What if your friend didn’t bring any money, but you wanted to go on the bouncy house with her, how would that change what you spend your money on? * If you had more or less money, how would you spend your money differently? * If you found $3.00 on the ground, what would you do now? |

|  |  |
| --- | --- |
| **PART 3: SHARING AND DISCUSSING THE TASK** | |
| How will you orchestrate the class discussion so that you accomplish your mathematical goals?   Which solution paths do you want to have shared during the  class discussion? In what order will the solutions be presented? Why?   What specific questions will you ask so that students will—  1. make sense of the  mathematical ideas that you want them to learn?  2. expand on, debate, and question the solutions being shared?  3. make connections among the different strategies that are presented?  4. look for patterns?  5. begin to form generalizations?  What will you see or hear that lets you know that *all* students in the class  understand the mathematical ideas that  you intended for them to learn? | * Counting on * 2 digit adding/subtracting. Using your adding to check your subtracting * Deductive reasoning * Guess and check   Start with guess and check strategies, then build from that to show different steps and strategies   * Did you try anything before you used this strategy? Why did you change your strategy? * Evaluate your strategy… did it work? Why did it work for you? * Compare and contrast your spending patterns with other patterns your classmates presented. Did you place emphasis on rides? Food? Games? Was your money evenly distributed? * Why would a certain group spend the most money on a certain category? * Writing response:   Do you think that person/groups priority is reasonable? Why or why not?   * Are there any steps that you see repeated in the different strategies? * If you did this task again, would you change your mind about how you spent your money? * Graph the ranking of what activities were most popular * Defend your choices   See: proper use of symbols, participation, engagement, use of manipulatives  Hear: Vocabulary, counting on, turn-taking (partner discussion) |

TASK

Our school is having a carnival! You have saved your allowance for 2 weeks, and now have $10.00. You want to go on a ride, and play a game with your friends, but you haven’t had dinner yet. Decide on which things at the carnival you will spend your money.

Food

|  |  |
| --- | --- |
| Pizza | $1.50 |
| Hamburger | $2.00 |
| Hot Dog | $1.00 |
| Lemonade | $.75 |

Games

|  |  |
| --- | --- |
| Bean Bag Toss | $.50 |
| Wheel of Fortune | $1.00 |
| Dunk your Principal Booth | $3.00 |
| Go Fishing | $1.25 |
| Balloon Darts | $1.25 |

Rides

|  |  |
| --- | --- |
| Bouncy House | $3.50 |
| Ferris Wheel | $4.25 |
| Mini Roller Coaster | $5.00 |